ATTACHMENT B
STANDARD MONITORING WELL PROVISIONS
FOR
MARCON INC., RARE EARTH SUBDIVISION
ORDER NO. _____

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing at least the information specified in this document. Wells may be installed after the executive officer's approval of the workplan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. A registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California must sign all workplans and reports.

Monitoring Well Installation Workplan

A. General Information:
   - Monitoring well locations and rationale
   - Survey details
   - Equipment decontamination procedures
   - Health and safety plan
   - Topographic map showing any existing monitoring wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details: describe drilling and logging methods

C. Monitoring Well Design:
   - Casing diameter
   - Borehole diameter
   - Depth of surface seal
   - Well construction materials
   - Diagram of well construction
   - Type of well cap
   - Size of perforations and rationale
   - Grain size of sand pack and rationale
   - Thickness and position of bentonite seal and sand pack
   - Depth of well, length and position of perforated interval

D. Well Development:
   - Method of development to be used
   - Method of determining when development is complete
   - Method of development water disposal

E. Surveying Details: discuss how each well will be surveyed to a common reference point

F. Soil Sampling (if applicable):
   - Cuttings disposal method
   - Analyses to be run and methods
   - Sample collection and preservation method
   - Intervals at which soil samples are to be collected

Number of soil samples to be analyzed and rationale
Location of soil samples and rationale
QA/QC procedures

G. Well Sampling:
Minimum time after development before sampling (48 hours)
Well purging method and amount of purge water
Sample collection and preservation method
QA/QC procedures

H. Water Level Measurement:
The elevation reference point at each monitoring well shall be within 0.01 foot.
Ground surface elevation at each monitoring well shall be within 0.1 foot. Method and time of water level measurement shall be specified.

I. Proposed time schedule for work.

Monitoring Well Installation Report of Results

A. Well Construction:
Number and depth of wells drilled
Date(s) wells drilled
Description of drilling and construction
Approximate locations relative to facility site(s)
A well construction diagram for each well must be included in the report, and should contain
the following details:
Total depth drilled
Depth of open hole (same as total depth drilled if no caving occurs)
Footage of hole collapsed
Length of slotted casing installed
Depth of bottom of casing
Depth to top of sand pack
Thickness of sand pack
Depth to top of bentonite seal
Thickness of bentonite seal
Thickness of concrete grout
Boring diameter
Casing diameter
Casing material
Size of perforations
Number of bags of sand
Well elevation at top of casing
Depth to ground water
Date of water level measurement
Monitoring well number

Date drilled
Location

B. Well Development:
Date(s) of development of each well
Method of development
Volume of water purged from well
How well development completion was determined
Method of effluent disposal
Field notes from well development should be included in report.

C. Well Surveying: provide reference elevations for each well and surveyor's notes

D. Water Sampling:
Date(s) of sampling
How well was purged
How many well volumes purged
Levels of temperature, EC, and pH at stabilization
Sample collection, handling, and preservation methods
Sample identification
Analytical methods used
Laboratory analytical data sheets
Water level elevation(s)
Groundwater contour map

E. Soil Sampling (if applicable):
Date(s) of sampling
Sample collection, handling, and preservation method
Sample identification
Analytical methods used
Laboratory analytical data sheets